REMARKS

This amendment is responsive to the Office Action dated January 14, 2005. Applicants have canceled claim 5, and amended claims 1-4, 9-21, 26-28, 38-41, 47 and 50. Claims 1-4 and 6-55 are pending.

Claim Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-18, 20, and 22-55 under 35 U.S.C. 102(b) as being anticipated by Krishnamurthy et al. (USPN 6,389,464). Applicants respectfully traverse the rejection to the extent such rejection may be considered applicable to the amended claims. Krishnamurthy et al. fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. 102(b), and provides no teaching that would have suggested the desirability of modification to include such features.

Claims 1-27

Applicants have amended claim 1 to clarify that the virtual management system is directed to administration and management of a network data center. Moreover, applicants have amended claim 1 to clarify that the virtual management system represents the components of the data center in terms of a hierarchy of related objects. In particular, amended claim 1 requires a network device having a user interface that presents an administrative management hierarchy of objects that represents components of the network data center. In this manner, the virtual management system is capable of presenting an administrator of a data center with a user interface that organizes the components of the data center in a systematic way and allows the administrator to easily configure the various components.

The Examiner is generally correct in noting that Krishnamurthy discloses a system in which a user can remotely manage network devices via a user interface. More specifically, Krishnamurthy teaches a system wherein a special device called a "site server" may be coupled to a limited number of devices. A user of such a system may manage the devices physically coupled to the site server by accessing a web server hosted by the site server.

For example, Krishnamurthy describes a system capable of "managing devices from multiple vendors." Col. 3, line 63. Further, Krishnamurthy teaches a system that makes it

"possible to manage virtually any device from virtually anywhere." More specifically, Krishnamurthy teaches an "integrated site server . . . programmed to generate Web pages to allow users to configure the site server to manage a particular device by specifying a device driver, and selecting from port configuration options and port drivers, alert message options, and MIB file administration options." In whole, Krishnamurthy teaches a system wherein the user can configure the properties of individual devices. Krishnamurthy specifically states that the different device may relate to the telecommunications, medical instrumentation, manufacturing, process control, utilities management, and remote monitoring and/or control of environmental equipment and home appliances.

In contrast, claim 1, as amended, requires a network device having a user interface that presents an administrative management hierarchy of objects that represents components of a network data center. A data center is not an individual device or even a collection of unrelated individual devices. Rather, a data center is a specialized system that provides data serving and other services to subscribers. More sophisticated data centers may be spread throughout the world with subscriber support equipment located in various physical hosting facilities. Claim 1, as amended, addresses a virtual management system capable of administering and managing such a data center. Krishnamurthy, fails to teach or suggest an interface for management of a network data center, and fails to describe an interface that presents a hierarchy of objects representing components of a network data center, as required by claim 1.

Claims 9, 10, 11, 12, and 27 require representations of a data center in terms of a hierarchy. For example, amended claim 9 requires a representation of a data center with a facility object as the root object of an administrative management hierarchy, where the facility object includes children objects representing subscribers, log servers that record events within the data center, devices, and services of the data center. As another example, amended claim 10 requires a subscriber object that serves as a root of the administrative management hierarchy, and the subscriber object includes children objects that represent services provided by the data center. Similarly, claim 27 requires that the user interface govern access to the objects by the administrative management hierarchy.

With regard to claims 9, 10, 11, 12 and 27, the Examiner cites Krishnamurthy column 17, lines 59-67. However, this passage of Krishnamurthy describes methods for "secure access to

the managed devices." Col. 17, lines 58-59. Krishnamurthy states that "the site server can secure access to the managed devices in a plurality of way, including log-in and passwords for system operations via the web browser authorization of outbound communications, CHAP/PAP . . . as well as restriction on user access to commands and functions." In other words, Krishnamurthy merely describes that users may have to authenticate themselves before administering a site server or the individual devices associated with the site server.

Claims 9, 10, 11, 12 and 27 do not mention or require authentication. Rather, claims 9, 10, 11, 12 and 27 recite specific features by which the user interface organizes and presents the hierarchy of objects representing the data center. It is clear that the cited passage of Krishnamurthy does not teach any of the claimed methods of organizing or arranging objects related to a data center.

Claims 28 – 37

Applicants have amended independent claim 28 to clarify that the configuration controller manages devices in a network data center. This amendment further clarifies that the service objects, subscriber objects, device objects, and facility objects all relate to specific components of the data center, and that the configuration controller control access to the service management interface, the subscriber management interface, the device management interface and the facility management interface in accordance with a hierarchy that relates the service object, the subscriber object, the facility object and the device object.

As amended, independent claim 28 requires a service management interface for the controller based on a service object representing one or more of the services provided by the data center. For example, the specification describes e-commerce services, extranets, intranets, VPNs, firewall protection, web caching, etc. as services of a data center.

Krishnamurthy does not teach an interface based on data center services. However, the Examiner cites Krishnamurthy Col 4, lines 55-60 to support this proposition. This passage of Krishnamurthy states that "the integrated site server is programmed to generate Web pages to allow users to configure the site server to manage a particular device by specifying a managed driver." A device driver is a program that determines how a computer will interact with a peripheral device. WORDNET 2.0, Princeton University (2003). In other words, a user of the

system taught by Krishnamurthy could determine how the site server interacts with an attached device by changing the driver associated with the attached device.

Thus, it appears that the Examiner interprets a "service object" claimed by the Applicants as a device driver. Claim 28, as amended, makes clear that the service object represents a service provided by a data center, and cannot be characterized simply as a program that manages the physical interaction with a peripheral device.

Further, amended claim 28 requires a subscriber management interface for the controller enabling device configuration based on a subscriber object representing a subscriber of the data center. The Examiner stated that Krishnamurthy figure 8, item 134 discloses this requirement. However, figure 8, item 134 discloses a text box on a web page labeled "short name for this managed device class." The word "Switch" appears in the text box. Applicants are confused as to how the Examiner interprets this text box to indicate device configuration of a data center in accordance with a subscriber.

In addition, claim 28 requires a facility management interface allowing the administrator to configure objects in the system based on a facility object that represents a geographic site of the data center. In other words, a facility object represents a physical location where the devices are housed. For example, the virtual management system represents the data center facilities in Budapest or New York FIG. 6 as facility objects. The Examiner claims that Krishnamurthy discloses this requirement in FIG. 28. However, the Examiner has erroneously equated facility objects with log servers.

Further, amended claim 28 requires that the configuration controller control access to the service management interface, the subscriber management interface, the device management interface and the facility management interface in accordance with a hierarchy that relates the service object, the subscriber object, the facility object and the device object. As set forth above with respect to claim 1, Krishnamurthy fails to teach or suggest these features.

The Krishnamurthy system teaches only a system for configuring a set of unrelated devices. The Examiner cites Figure 5, item 110 of Krishnamurthy. This item displays five options: Configure System-Wide Options, Configure Managed Devices, Configure Ports, Configure MIB Definition Files, and Configure Alert Processing. In addition, Col. 6, lines 55-67, relied upon by the Examiner describe a "relational database . . . for storing configuration data

which . . . allows native interfaces to be interpreted as SNMP operations, thereby allowing a single SNMP manager or web manager to manage different kinds of devices connected to the site server."

The cited references in Krishnamurthy do not disclose an interface for managing a data center. None of the five options listed in the Krishnamurthy Figure 5 relate to data center services. Moreover, the Examiner has identified no passage within Krishnamurthy that describes a hierarchical management interface that allows management of facilities, subscribers, devices and services. For instance, Krishnamurthy does not teach method of managing the subscriber objects, facility objects, and device objects associated with a service object. Col. 6, lines 55-67 cited by the Examiner does not disclose such a presentation either. Rather, the passage relates to how the site server of Krishnamurthy stores information about various the devices in a database. As such, the passage has little to do with Applicants claimed management system.

In addition, the Examiner asserts that Krishnamurthy teaches each element of claims 30, 31, and 32 in Krishnamurthy Figure 5, item 110 and Col. 6, lines 55-67. Claim 30 requires presentation relative to a subscriber object, claim 31 requires presentation relative to a device object, and claim 32 requires presentation relative to a facility object. As explained above in relation to claim 29, the list of options displayed in Figure 5, item 110 does not include options relating to subscribers, devices, or facilities. In addition, Col. 6, lines 55-67 relates to how a site server stores data on various unrelated devices and not to a management interface at all. For this reason, Krishnamurthy fails to disclose each element of claims 29 – 32 as required by §102(b).

Claims 38 – 49

Applicants have amended independent claim 38 to clarify the graphical user interface present components of a data center as a hierarchy of objects within the interface, and that the data center include devices that provide services to a set of subscribers. In addition, claim 38, as amended, requires that the network manager interact with devices in the data center to implement changes responsive to the user interface.

As discussed in relation to claim 1, Krishnamurthy fails to teach a graphical user interface that allows a user to configure components of a data center. Namely, Krishnamurthy fails to disclose any reference to management of a network in terms a hierarchy organized by subscriber,

facility, or service. Instead, Krishnamurthy teaches a system of managing particular devices. Krishnamurthy Col 4, line 57. Moreover, as set forth above with respect to claim 1, Krishnamurthy fails to teach or suggest a graphical user interface that presents components of a data center as a hierarchy of objects within the interface, and that the data center include devices that provide services to a set of subscribers.

With respect to claims 39-41, Krishnamurthy fails to teach or suggest a subscriber object representing a subscriber to the data center, a device object representing a device within the data center, or a service object representing a service provided by a data center.

Claims 50 - 55

Applicants have amended independent claim 50 to clarify that the graphical network interface includes a plurality of object views related to a network data center. Moreover, the Applicants have clarified each of the views with respect to the components of the data center.

With regard to the elements of claim 50, the Examiner implies that Krishnamurthy teaches each view required by claim 50. For instance, the Examiner points to Krishnamurthy Figures 5 – 24 to show that there is a facility object, subscriber object, device object, and log server object view. In addition, the Examiner cites Krishnamurthy Col. 17, lines 59-67 to show that these views are arranged as a hierarchy. Finally, the Examiner cites Krishnamurthy Figures 5 – 24 and Col. 10, lines 32-47 to show that a user can configure an object via the view.

Examiner is correct that Krishnamurthy Figure 7 shows a view for configuring a device. However, Examiner fails to show a reference in Krishnamurthy to a view for configuring any component of a data center, let alone a facility object, a subscriber object, or a log server object. In addition, Examiner does not show that the views are organized by a hierarchy relative to the other views. Instead, Examiner cites Col. 17, lines 59-67 which, as discussed before, relate to authentication and security, and is completely unrelated to an interface that presents hierarchical views of a data center. The presence of facility object, subscriber object, and log server object views of claim 50 represents a fundamental difference from Krishnamurthy.

Krishnamurthy fails to disclose each and every limitation set forth in claims 1-18, 20, 22-55. For at least these reasons, the Examiner has failed to establish a prima facie case for

anticipation of Applicants' claims 1-18, 20, 22-55 under 35 U.S.C. 102(b). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 19 and 21 under 35 U.S.C. 103(a) as being unpatentable over Krishnamurthy et al. in view of Araujo et al. (USPN 2002/0032725 A1). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

In general, Araujo fails to overcome the deficiencies of Krishnamurthy set forth above. Claim 19 requires a virtual management system wherein the service objects include a load balancing application. Applicants have amended claim 19 to clarify that the load balancing application load balances services across the devices of the data center. As described in the specification, in a data center, load balancing can be achieved through specialized appliances or through generic servers running load balancing software.

In regard to claim 19, the Examiner correctly recognized that Krishnamurthy does not describe a load balancing service object. However, the Examiner states that Araujo discloses such load balancing services. In addition, the Examiner supposes that Araujo suggests that it would have been desirable to include load balancing as one of the service objects in a virtual management system. In particular, Examiner cites paragraph 38 of Araujo to support this proposition. Paragraph 38 of Araujo reads:

> *Additionally, the SEP continually monitors operational status of itself including its network (LAN and WAN) connections, LAN-connected servers including, for example, each of the hosted office application servers, and/or any group thereof. In the event of a detected fault or failure condition in any monitored entity, the SEP generates a corresponding alarm and reports it, through a web-based connection, to a centralized administrative web site (referred to herein as a "Customer Care Center" (CCC)) to implement remote network monitoring and management functionality. This functionality is implemented through converting data content, including alarm information, from a native format into HTTP-based messaging with the latter being used for web transport and converting that content, once received at the CCC, into an appropriate format for storage thereat. Advantageously, this web-based reporting technique readily allows a large number of separate LANs that are dispersed over a very wide geographic area to be readily monitored and managed through the CCC. Moreover, the number of*

> *such managed networks can be easily scaled upward, as needed, by, for the most part, simply and correspondingly expanding processing and storage capacity of the CCC to handle the anticipated load.*

This paragraph fails to name or even describe load balancing of services within a data center as required by claim 19. The sentence regarding "anticipated load" does not consider the distribution of network requests among servers. Rather, the sentence refers to adding more processing and storage capacity to a Customer Care Center (CCC). Scaling up the capacities of a Customer Care Center certainly does not teach or suggest load balancing within a data center. The sentence and paragraph do not describe any way to configure a load balancing service. In summary, the desirability of adding a load balancing service to a virtual management system would not be obvious to one of ordinary skill in the art in view of this paragraph of Araujo. Moreover, it is unclear exactly how the Krishnamurthy system for managing separate devices could even incorporate a load balancing service.

Claim 21 requires the virtual management system to include a secure sockets layer (SSL) accelerator service object as a service object. SSL acceleration is a technique of reducing the load on the CPU of a network server by offloading SSL computations. Specifically, a computing device or server running SSL acceleration software processes the CPU-intensive tasks of establishing an SSL connection and then encrypting and decrypting messages of the SSL connection. The SSL accelerator then passes the clear text messages of the SSL connection to the network servers that actually process the application-layer content of the messages. In this way, the network server can handle more requests more efficiently because the SSL accelerator handles the computationally expensive aspects of SSL.

The Examiner is correct in finding that Krishnamurthy does not disclose SSL acceleration. The Examiner, however, states that Araujo corrects this deficiency in paragraphs 40 and 80. Further, the Examiner suggests that it would have been "obvious to one of ordinary skill in the art to use SSL to further security for users as Krishnamurthy intends to do in column 7, lines 32-43." Araujo paragraph 40 does discuss SSL:

> *Once a WAN login succeeds, the SEP will continue with its previous management session, though secured through SSL, with the CCC. The SEP will then interact with the CCC and obtain a valid client certificate from the CCC. Future interactions between the CCC and SEP will use the client certificate to*

authenticate this SEP in lieu of the previously-used challenge/response mechanism.

Paragraph 80 also discusses SSL:

Our invention advantageously utilizes web-based access to office applications, with those applications being remotely hosted by virtual office server 40 and encrypted communication provided through conventional secure sockets layer (SSL) capability supported within the browser. As such, client 10 contains conventional user browser 15. Advantageously, since all the office applications are hosted remotely, there is no need to install, configure or maintain any user application programs, other than a web browser, on remote client 10; thereby, dramatically reducing cost of ownership of the client PC.

Both of these paragraphs discuss the desirability of using SSL capability for secure communication a client and a server. However, neither of these passages even discusses SSL *acceleration*. Araujo fails to teach or suggest SSL acceleration, let alone the desirability of adding an SSL acceleration service to a virtual management system.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicants' claims 19 and 21 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicants respectfully request reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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